

Name: McGann, L.

Project: HOSPCOST

Department: Community & Preventive Medicine

Project Description: Tabulate the results of a sample survey of Stanford Medical Center hospital charges for the aged. The purpose of the study is to compare 1968 costs and sources of financing with parallel results of a 1962 study in the Stanford Medical Center.

Name: Mesel, E.

Project: CLINIC

Department: Pediatrics

Project Description: The object of this project is to store patient identification information and diagnoses obtained at each step in the course of illness (clinical - OPD or IPD, cardiac catheterization, surgery, and autopsy) in the ACME files. This work is patient-service oriented but has several experimental aspects such as the structuring of the filing schemes to permit rapid access (while conserving the amount of file space utilized) and the utilization of the stored information for hospital planning purposes, evaluation of patient survival with different modes of therapy, etc.

Name: Mesel, E.

Project: WFR

Department: Pediatrics

Project Description: Investigation of mathematical modeling techniques applicable to medical diagrams. The plan is ultimately to apply the cause-effect modeling techniques developed in an environment that allows on-line interaction between physician and computer model.

Though a program has been written to implement the cause-effect modeling techniques using a Burroughs B5500 computer, adapting even that program to ACME will require considerable effort as the program depends heavily on the nearly unique ability of the B5500 to efficiently handle recursion and treat overlay automatically. It is felt that the ability to experiment with the models constructed in a way available only in an on-line system and that the increased interest and criticism that will result from testing the models produced in a clinical environment justify the effort.

Currently programmed is the congenital heart disease model of Warner and his collaborators.

Name: Morrell, L.

Project: EEG

Department: Neurology

Project Description: The initial project will be multivariate statistical evaluation of data relating electroencephalographic measures to motor behavior. The data to be entered in ACME have already been partly processed with a LINC computer; period analysis of spontaneous EEG and also amplitude analysis are used as predictive variables for subsequent performance by the human subject. Analysis will be reiterated to afford comparison of electrocortical activity at various regions.

Other uses will be analysis of averaged cortical evoked responses to sensory input, and averaged cortical activity preceding and following voluntary action, including speech production. Statistical evaluation of such data as recorded simultaneously from a variety of electrode locations is planned.

Name: Noble, E.

Project: ALCOHOL

Department: Psychiatry

Project Description: We have been studying the effects of alcohol on the central nervous system of rodents. A study of alcohol's effect on the pituitary adrenal system is being studied in various inbred mouse strains. We are also studying the effects of central nervous system lesions on alcohol preference phenomenon in mice. Finally, the mechanism of central nervous system adaptation to alcohol and other stressors is being considered.

Name: Whitcher, C.

Project: spectrm

Department: Anesthesia

Project Description: Spectral analysis of blood pressure sounds. Determine why blood pressure sounds are difficult to hear under adverse circumstances.

Category 12

Name: Angel, R.

Project: ERCORECT

Department: Neurology

Project Description: Data reduction and statistical analysis of movement patterns, limb displacement, limb velocity, and electromyography in relation to both normal subjects and neurologically impaired patients.

Name: Constantinou, C.

Project: UROL

Department: Urology

Project Description: ACME will be used for research in the Division of Urology for real-time data acquisition and feedback.

Analogue data collected from anesthetized animals in surgery will be transmitted via the interface box to the 1800 and 2741 output received in the operating room during the experiment.

There are four input channels now for parameter input such as action potentials from ureteral smooth muscle, peristaltic pressure waves, urine flow rate, EKG or blood pressure. The analogue output is used for driving the XY plotter and providing a reference for servomechanical pump. During experiments data files are written from the analogue inputs for long-term storage and also for short term (up to two weeks) before data reduction.

ACME will also be used for statistical analysis of the experimental work and the TV for display of waveforms and graphs.

Name: Duffield, A.

Project: CHEM

Department: Chemistry

Project Description: The purpose of this project can be summarized as follows: (A) The taking of high rate data transmission to write experimental analysis programs so as to develop programs for the routine analysis and finished output of mass spectra. The transmission is through the 270Y-270X channel. The project plans to develop this interface to service two mass spectrometers (ALTAS CH4 and AEI MS9). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of Joshua Lederberg and Edward Feigenbaum to be used in their investigations. (B) Another use of data transmission through the 270Y is to take spectropolorimeter measurements and then analyze these spectra for form, bandwidths, and similarities between derivatives for theoretical projections. (C) The project mentioned also includes a battery of utility programs for metastable analysis, chemical rate analysis, Cl3 substitution ratios, and other routine analyses that the chemists wished programmed.

Name: Gersch, W.

Project: SYNTHESI

Department: Neurology

Project Description: Research in the application of time series methods to problems in neurophysiology and medicine.

- 1) Development and application of new multidimensional autoregressive representation methods of spectral analysis to EEG analysis.
- 2) Development and application of a time series analysis technique to locate the anatomical site of epileptic focus from data taken from deep brain site implanted bipolar electrodes during generalized epileptic seizure activity.
- 3) Research on modeling feedback paths in the cat's visual system. Experimental data taken in the laboratory of Dr. K. L. Chow.
- 4) A critical computer analysis of a long standing model of vagus control of heart rate.
- 5) Development of a novel Markov chain-symbol pattern recognition procedure applied to recognition of cardiac arrhythmias using R-R interval data.

Name: Reynolds, W.

Project: DREAMS

Department: Genetics

Project Description: The purpose of this project can be summarized as follows: (A) The taking of high rate data transmission to write experimental analysis programs so as to develop programs for the routine analysis and finished output of mass spectra. The transmission is through the 270Y-270X channel. The project plans to develop this interface to service two mass spectrometers (ALTAS CH4 and AEI MS9). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of Joshua Lederberg and Edward Feigenbaum to be used in their investigations. (B) Another use of data transmission through the 270Y is to take spectropolorimeter measurements and then analyze these spectra for form, bandwidths, and similarities between derivatives for theoretical projections. (C) The project mentioned also includes a battery of utility programs for metastable analysis, chemical rate analysis, C13 substitution ratios, and other routine analyses that the chemists wished programmed.

Name: Ross, R.

Project: CHEM

Department: Chemistry

Project Description: The purpose of this project can be summarized as follows: (A) The taking of high rate data transmission to write experimental analysis programs so as to develop programs for the routine analysis and finished output of mass spectra. The transmission is through the 270Y-270X channel. The project plans to develop this interface to service two mass spectrometers (ALTAS CH4 and AEI MS9). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of Joshua Lederberg and Edward Feigenbaum to be used in their investigations. (B) Another use of data transmission through the 270Y is to take spectropolorimeter measurements and then analyze these spectra for form, bandwidths, and similarities between derivatives for theoretical projections. (C) The project mentioned also includes a battery of utility programs for metastable analysis, chemical rate analysis, C13 substitution ratios, and other routine analyses that the chemists wished programmed.

Name: Stillman, R. A.

Project: DREAMS

Department: Chemistry

Project Description: The purpose of this project can be summarized as follows:

- (A) The taking of high rate data transmission to write experimental analysis programs so as to develop programs for the routine analysis and finished output of mass spectra. The transmission is through the 270Y-270X channel. The project plans to develop this interface to service two mass spectrometers (ALTAS CH₄ and AEI MS9). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of Joshua Lederberg and Edward Feigenbaum to be used in their investigations.
- (B) Another use of data transmission through the 270Y is to take spectropolorimeter measurements and then analyze these spectra for form, bandwidths, and similarities between derivatives for theoretical projections.
- (C) The project mentioned also includes a battery of utility programs for metastable analysis, chemical rate analysis, Cl₃ substitution ratios, and other routine analyses that the chemists wished programmed.

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Name: Assaykeen, T.

Project: RENIN

Department: Urology

Project Description: We have previously reported that in dogs insulin-induced hypoglycemia significantly increases plasma renin levels. We would like to continue these studies in order to attempt to determine what the stimulus to renin secretion is under these conditions and how this stimulus is transmitted to the juxtaglomerular cells.

There is good evidence that the sympathetic nervous system can influence renin secretion but how this occurs is not known. We would like to establish whether catecholamines stimulate renin secretion through alpha or beta receptors, whether cyclic 3', 5'-AMP is involved and whether the effects of the catecholamines on renin secretion can be separated from the effects of these compounds on renal hemodynamics and function.

The results of such studies may lend support to existing theories regarding the control of renin secretion or may give new insight concerning the physiologic control of this important endocrine system.

Name: Cohen, S.

Project: DRUGALRT

Department: Pharmacology

Project Description: The project involves the establishment of a computer-based program aimed at preventing undesirable drug interaction and reducing drug toxicity at the Stanford University Medical Center. A data bank utilizing already available information from the pharmacological literature will be compiled dealing with drug interactions of clinical significance. When prescriptions are billed by the Stanford pharmacists, they would type the name of the drug and the dosage regimen into a terminal located in the Hospital pharmacy. When a new drug added to a patient's regimen interacted with any one of the several drugs a patient may already be receiving, the computer would print out an appropriate alert accompanied by a literature reference, which would be sent to the nursing unit by the pharmacist--together with the drug. Prior to administering a drug accompanied by such an "alert", the nurse would contact the physician in charge, who would take the patient's total clinical condition into account in deciding whether or not the drug should be administered. This program would provide considerable teaching benefits to students and house staff, in addition to providing benefits of major importance to patient care. In addition, it would be possible to assess the impact of providing physicians with drug interaction information in such a direct fashion, and also to learn in a prospective way about the clinical effects of incompatible drug combinations that are administered for one reason or another despite the alert.

Name: DeNardo, G.

Project: XENON133

Department: Nuclear Medicine

Project Description: This project involves the use of radioactive methods to assess the regional distribution of ventilation and pulmonary blood flow in normal subjects and subjects with disease. A scintillation camera and special purpose computer are used to generate positron and quantitative information for subsequent processing by ACME. Studies in upright man have revealed that the distribution of ventilation is determined by the pre-inspiratory and inspiratory volumes.

We propose to study pulmonary embolism with these radioactive methods and compare the results with those obtained from conventional pulmonary function studies.

Name: Fries, J.

Project: DATABANK

Department: Medicine-Immunology

Project Description: Concerned with the problem of establishing significant clinical, pathologic, and laboratory correlations in the immunologic diseases, and assessing these correlations in regard to classification, pathogenesis, prognosis, and response to therapy. These diseases are characterized by involvement of a large number of organ systems, a large variety of associated laboratory abnormalities and a course prolonged in duration and punctuated with periodic exacerbations and remissions. A massive amount of data is thus generated by each patient and meaningful correlations may be obscure to the clinician and inaccessible to the clinical researcher. The data cannot be well-handled retrospectively or manually.

We have evolved an ordered, comprehensive method of recording patient data structured with respect to time. We propose to establish a computer data bank for storage of this structured information and to develop programs for searching the data bank in a variety of ways to provide the desired correlations and statistical analyses.

Name: Govan, D.

Project: PARAQUAD

Department: Urology

Project Description: The Division of Urology at Stanford is currently responsible for the urologic evaluation management and clinical follow-up of nearly 300 patients with spinal cord injury or disease. Utilizing the ACME Computer Facility between July 1967 through the present time, we have developed a method of information storage and retrieval which promises to be of considerable assistance to us in the overall management of this group of patients.

Name: Kakihana, R.

Project: ETHANOL

Department: Psychiatry

Project Description: We have been studying the effects of alcohol on the central nervous system of rodents. A study of alcohol's effect on the pituitary adrenal system is being studied in various inbred mouse strains. We are also studying the effects of central nervous system lesions on alcohol preference phenomenon in mice. Finally, the mechanism of central nervous system adaptation to alcohol and other stressors is being considered.

Name: Kriss, J.

Project: ASSAY

Department: Nuclear Medicine

Project Description: This program is used to calculate the results of a bioassay for the long-acting thyroid stimulator, (LATS), to calculate the statistical significance of these results, and to calculate the results of radioimmunoassays for TSH, FSH, LH, growth hormone, anti-sperm antibody, anti-thyroglobulin, anti-microsomal antibody, and LATS. These data are being acquired as part of a study on the pathogenesis of Graves' disease, the effects of X-ray therapy upon thyroid function, and the pathogenesis of other endocrine disorders associated with autoimmunity.

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Name: Dong, E.

Project: heart

Department: Cardiovascular Surgery

Project Description: Study effects of heart transplantation. Collecting data on blood volume, heart rate, rhythm, and blood pressures. Also, developing relationships between white cell types--correlations and negative correlations.

Name: Dong, E.

Project: MARG1

Department: Cardiovascular Surgery

Project Description: The purpose of our project is to develop a controller for an artificial heart. We are attempting to do this by using a transfer function between arterial pressure and heart rate. The project is a joint concern between the Department of Cardiovascular Surgery and the Stanford Electronics Laboratory.

At the present time, we are recording three channels of analog data from an auto-transplanted dog. This data is processed using the ACME 1800 system. The data are converted to digital data using the 1800 and stored in the 360/50. It is then processed and six channels of data are calculated. The digital data is then converted to analog signals using the 1800 and printed out on an offner strip chart in the laboratory.

We also have a PDP-8-360/50 interface which we use to store PDP-8 data on the ACME system.

Name: Mesel, E.

Project: VSD

Department: Pediatrics

Project Description: This project is concerned with blood flow through ventricular septal defects (VSD) surgically produced in dogs. Two major sets of comparisons are made: the pattern of flow through the VSD is compared with the pattern of differential pressure between the left and right ventricles and with the electrocardiogram (ECG); and flow measured by an electromagnetic flow probe (which we consider a primary standard) is compared with flow measured by other techniques used on people (Fick dye dilution).

During the experiment VSD flow, left and right ventricular pressures, and the ECG are recorded on tape. The more interesting data are selected for A to D conversion and for computation of the differential pressure by program WORKHORSE. Program LISTING lists digitized data, which, when graphed, permits comparison of the pattern of flow with the pattern of differential pressure. As might be expected, we have found that these patterns are very similar even under varying conditions (e.g., ectopic beats), with flow slightly delayed with respect to pressure. Program cathlog produces a file which summarizes all our VSD experiments.

Future effort will be directed towards the incorporation and use of programs developed in project carcat for pattern recognition of pressure and flow contours.

Name: Morris, S.

Project: EXPT4

Department: Genetics

Project Description: I am using the 1800 to interface a Packard liquid scintillation counter to the 360. This allows me to feed raw data directly into the 360 where it can later be retrieved and digested. ACME will be used to analyze the incorporation of radiolabeled amino acids into brain proteins.

Name: Smith, N.

Project: MAC

Department: Anesthesia

Project Description: This project involves calculation of cardiovascular data from variables obtained in normal volunteer subjects and patients. No statistical analyses are performed through this program; rather they are performed separately using standard programs.

Name: Smith, N.

Project: BABOONS

Department: Anesthesia

Project Description: This project involves transfer of manually obtained and calculated data into ACME files. Multiple regression and correlation analyses are then performed on these data. Data obtained by destructive methods (thoracotomy, catheter placement, etc.) are compared to those obtained by nondestructive methods (microphones, accelerometers, etc.). It is hoped to replace the former with the latter.

Name: Thathachari, Y.

Project: DOPA

Department: Dermatology

Project Description: Structure of melanins. Melanin is a polymeric pigment widely distributed throughout the plant and animal kingdoms. It has unusual physical and chemical properties. Using ACME as a real-time terminal, models of the molecular structure of melanins were generated starting with the known shape of the subunits and using various criteria for the linking of adjacent units. By watching the output periodically, the flow of the computation could be directed at will. For these generated models, various measurable physical data were computed and compared with the experimentally derived values. Programs were especially written for these calculations and were found to be very promising and fruitful. Some of the results have been published and presented at conferences and more publications are under way. In view of the success of the techniques, the work is being continued.

Radioactive tracer techniques for the detection and therapy of melanomas--improvement on the conventional scanning techniques, making more efficient use of observations with a real-time feed back between the collection of data and their processing. Simulated experiments using ACME as a real-time terminal are under way to make a choice between alternate techniques. When the choice is made, we plan to commission the equipment and the interfacing with ACME.

Name: Warrick, G.

Project: STEROID

Department: Psychiatry

Project Description: The present research in our psychophysiological laboratory revolves around the "averaged evoked response." We record a continuous EEG on magnetic tape when presenting selected stimuli. Afterwards it is necessary to take out the EEG from the recording for certain time periods after each stimulus and average from 25 to 100 curves. When more than one kind of stimulus is shown the EEG must be distributed according to specific stimuli and several averages calculated simultaneously.

ACME supplies us with 3 analog input lines for reading of the EEG and corresponding signals. Our sampling rate is 4 msec and by reading 100 curves for 500 msec or 25 curves for 4 sec, we use a storage space of 25000. After the curves are selected and averaged, they are returned through an analog output line and plotted on our X-Y plotter. The curves are also stored in digital form in the ACME file system.

We are presently having a second output line installed to give us a time base for the x-axis on the plotter.

The two output lines will be connected for more systematic results.

Name: Wittner, W.

Project: AROGUESS

Department: Psychiatry

Project Description: (AROGUESS) The influence of correctly and incorrectly guessed visual patterns on visual averaged evoked response. This study deals with changes in the electroencephalogram (EEG) of human subjects under conditions of various "mental states." The EEG associated with certain visual stimuli in certain "mental states" will be averaged to obtain the so-called averaged evoked response (AER). The shape of the AER waveform reflects brain activity beyond the purely sensory-receptive component. For instance, the AER is influenced by such variables as attention, conditioning, and habituation.

In this study, young healthy males will be presented with a sequence of two types of visual stimuli which will alternate randomly. One presentation will consist of a cueing flash, an arrow pointing left, and a test flash. The other visual stimulus presentation will consist of a cueing flash, an arrow pointing right, and a test flash. Prior to each presentation, the subject will make a guess as to the type of upcoming presentation by pressing either a left-handed or a right-handed button.

On the basis of results of related studies by other investigators, it is assumed that the evoked response to correctly guessed arrows will differ from that evoked by incorrectly guessed arrows. One purpose of the study will be to ascertain whether indeed this is so. Furthermore, it is hypothesized that the AER induced by flashes following incorrectly guessed arrows will differ in shape from the AER averaged on flashes following correctly guessed arrows. The assumption is made that guessing correctly produces a different "state of mind" than guessing incorrectly and that this "state of mind" persists long enough to alter the AER to a rapidly following neutral light stimulus. The various AERs will be differentially averaged to prove or disprove the stated hypotheses.

The averaging of the EEG to obtain the AER will be done by the use of ACME computers. Once the various AERs are averaged, they will be analyzed and compared with each other, again by use of the ACME facility. Data (at various stages of analysis) will be stored in computer files.

Should the hypotheses prove to be correct, further research will be conducted to investigate the effects of hormones on these parameters.

Category 15

Name: Aronow, L.

Project: LCEL

Department: Pharmacology

Project Description: Routine laboratory calculations, including statistical tests of significance, relating to the mechanism of action of anti-cancer drugs.

Name: Bagshaw, M.

Project: SUMMARY

Department: Radiology

Project Description: The project is designed for retrieval of cases and classification of cases from the tumor registration. The ACME Computer is used for:

1. Gathering case histories and follow-up information from patients with tumors treated by radiation therapy.
2. Generating reliable data for the therapist's use in either research work or patient treatment.

Name: Baldwin, R.

Project: OLIGOMER

Department: Biochemistry

Project Description: The project is characterization and helix -- forming properties (both kinetic and equilibrium properties) of short DNA helices formed by dAT oligomers of defined chain of lengths. dAT oligomers have the repeating and self-complementary base sequence ...ATAT... .

They may form either hairpin helices or dimmer helices, depending on conditions.

The aims of the project are: (1) characterization of loops in DNA helices, (2) measurement of the parameters controlling the cooperativity of DNA melting, and (3) measurement of the rates of the elementary steps of base pair opening and dosing in DNA helices.

Name: Bausek, G.

Project: HODPAT

Department: Medicine - Infectious Diseases

Project Description: Lymphoma data program (LDP). The radiotherapeutic treatment of lymphomas, particularly Hodgkin's disease, has been shown to be the most effective way of achieving high cure rates. However, many aspects of these malignancies are still puzzling. For example, in addition to the obvious truth that we are still in the dark regarding the origin of lymphatic cancer, there appear to be significant differences between the lymphomas in their methods of progression, both in the presence and absence of treatment. The LDP has as its initial goal the accumulation of data on many aspects of lymphoma patients in readily retrievable form. Items of importance are: results of physical exams of new patients, background information such as records of malignancies in the patients' families, early symptoms of the disease, laboratory data, method of treatment, and follow-up data (recurrence, retreatment, etc.).

From the analysis of such stored information, it is anticipated that inferences can be drawn regarding optimum treatment scheduling and the possible causes of these diseases.

Name: Beard, R.

Project: PREVMED

Department: Community & Preventive Medicine

Project Description: Making correlation computations. Analyzing behavioral responses and influences of inhaling carbon monoxide.

Name: Bodmer, W.

Project: POPGEN

Department: Genetics

Project Description: Our main use of ACME is for the analysis and interpretation of data on human white cell antigens. A secondary use is for the analysis and simulation of population genetic models. We have developed a series of programs to facilitate the storage of our data with appropriate editing at the time of input and to facilitate a read interaction between the experimental worker and the computer. This allows us, at short notice, to do small scale 2 x 2 analyses for serum characterization, selection of appropriate individuals for absorption and automatic typing according to complex patterns of serum reaction. These increased opportunities for interaction with the computer have been a great help in our day-to-day work and in establishing new relationships amongst our sera. Our future plans include the development of programs for the systematic analysis of family data.

Name: Brutlag, D.

Project: ULTRA

Department: Biochemistry

Project Description: During the past several months I have been studying the role of divalent metal ions in the reaction mechanism of the enzyme DNA polymerase. In this work I use ACME to perform nonlinear weighted regression analysis of the data I have in order to test various theoretical models which describe how the enzyme works. I also use ACME routinely as a general laboratory tool in the reduction of all of my experimental data. One program reduces data from enzymatic assays and prepares a written report. Another calculates binding constants from equilibrium dialysis experiments. I have also used ACME for calculating physical parameters of macromolecules from data obtained from the analytical ultracentrifuge.

Name: Cady, P.

Project: THYROID

Department: Psychiatry

Project Description: Thyroid function is being studied in human subjects of varying genetic backgrounds subjected to stress. Measures of thyroid function include iodine uptake, thyroidal iodine clearance, thyroxine turnover, free and total thyroxine, and thyroxine binding capacity. Psychological measures of stress include personality inventories, mood scales, I & E scales, coping scales, and scored psychiatric interviews. Biological measures of stress include cortisol levels, pulse, diastolic and systolic blood pressures, and auditory reaction times. Measures of genetic inheritability are made using Falconer's family incidence equations. The computer is clearly necessary to perform the analysis of variance with such a large number of variables.

Name: Collins, K.

Project: ATCase

Department: Biochemistry

Project Description: This file is used for three purposes. First, it is used in a variety of ways as a research tool. It has been used to compute the dissociation constants for an enzyme (ATCase) and some of its inhibitors. It will be used in the future to simulate difference from model compounds and compare these spectra with the experimental spectra and to analyze data from equilibrium dialysis studies of ATCase and its substrates and inhibitors.

Second, it is used as a data processing facility for research-generated data. It is extensively and routinely used to process chromatograms from an amino acid analyzer; a long program stored in ACME provides a variety of different procedures that may be used on the data.

Third, it is used as an education device. For instance, this file has been used to process data from a laboratory course in ultracentrifugation.

Name: Conner, R.

Project: RATRACE

Department: Psychiatry

Project Description: There are approximately 15 individuals in this laboratory directly involved in experimentation relating neuroendocrine function to behavior. Information from animal testing chambers will soon be recorded on a high-speed paper-tape punch. The data on the paper-tapes will be dumped directly into ACME data files through a PDP-8 interface, or listed by the PDP-8 for keyboard terminal input to ACME. In either case, a program in the permanent ACME files will be written to sort the data from the several experiments recorded simultaneously on the paper-tape. Appropriate programs for the analysis of data from specific experiments will also be maintained in the permanent program files. In addition, we plan to use the ACME system to reduce and analyze data derived from experimentation which does not involve use of our paper-tape recording system, e.g., adrenocortical steroid levels of animals under various conditions and ACTH bioassay data.

Name: Fung, D.

Project: HARTFORD

Department: Anesthesia

Project Description: Study of acute ventilatory insufficiency, includes research in: 1) mechanics and gas exchange in patients with ventilatory insufficiency, 2) clinical research in post-operative respiratory complication, 3) cardio-pulmonary failure, 4) respiratory distress syndrome of newborn, 5) drug intoxication, and 6) pulmonary blood flow and pulmonary hypertension. ACME is used in these studies for: 1) statistical analysis, 2) program files for computation of physiological parameters from blood gas and other data, and 3) A-D conversion and processing of respiratory data in computation of cardiac output, and respiratory variables.

Name: Fung, D.

Project: RESPUNIT

Department: Anestheisa

Project Description: Objective: To determine the response of the pulmonary circulation to changes in inspired gas composition and intra-treacheal pressure. Progress to date: Apparatus has been set up for measuring pulmonary blood flow from exhaled gas composition and a program is already available to compute the results. Current work: 1) Refinements are being made to improve the accuracy of the pulmonary blood flow measurement, and 2) a pilot study is being started to observe the effect of a change in inspired gas composition on pulmonary artery pressure. Intended computer use: Computation results from data a) calibration curves are computed, b) data is converted, c) results are computed, and d) statistical parameters are calculated.

Name: Glattkke, T.

Project: ENG

Department: Otolaryngology

Project Description: We are collecting data on an almost daily basis from a group of preparations with electrodes implanted in the auditory nervous system. Use of ACME for analyses requiring many replications of an operation (e.g., in auto-correlation) is advantageous.

Over the next few months, we anticipate attempting a feasibility study to determine if ACME would be useful for patient categorization. Our general thinking is that files containing coded history and test findings would be updated on a daily basis, so that these might be available for a trend analysis. (For example, the audiological examination on a given patient may incorporate as many as half-dozen tests. Patient selection for a given course of treatment or additional special testing would seem to be enhanced by the availability of such trend analyses.)

Name: Goldstein, A.

Project: PHAL

Department: Pharmacology

Project Description: All-purpose programs for statistical and curve-fitting procedures for laboratory studies on morphine, especially on development of tolerance and dependence.

Name: Goldstein, D.

Name: BARB

Department: Pharmacology

Project Description: Largely least-squares curve-fitting programs for establishing essential parameters for enzyme kinetics in inhibition of flavin enzymes by barbiturates.

Name: Hackney, J.

Project: PHAL

Department: Pharmacology

Project Description: All-purpose programs for statistical and curve-fitting procedures for laboratory studies on morphine, especially on development of tolerance and dependence.

Name: Hilf, F.

Project: TESTA

Department: Psychiatry

Project Description: Involves psychological testing of psychiatric patients using on-line interactive techniques in which the patient sits at the terminal and is asked questions and he gives the answers and is reinforced by the computer. A bravery procedure is also incorporated in this program. The main purpose is to determine if paranoid psychiatric patients respond to feedback differently than a control group of other psychiatric patients.

Name: Hwang, J.

Project: BWTSTUDY

Department: Genetics

Project Description: Study of birth weight and IQ in relation to sex, parents, education, race, and income.